

Hanford Waste Treatment Complex -- Foundation for Success


Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management



P.O. Box 450
Richland, Washington 99352

Copyright License

By acceptance of this article, the publisher and/or recipient acknowledges the U.S. Government's right to retain a nonexclusive, royalty-free license in and to any copyright covering this paper.

Date Received for Clearance Process (MM/YY/DD)	INFORMATION CLEARANCE FORM			
A. Information Category <input type="checkbox"/> Abstract <input type="checkbox"/> Journal Article <input type="checkbox"/> Summary <input type="checkbox"/> Internet <input type="checkbox"/> Visual Aid <input type="checkbox"/> Software <input checked="" type="checkbox"/> Full Paper <input type="checkbox"/> Report <input type="checkbox"/> Other _____	B. Document Number ORP-7664-FP C. Title Hanford Waste Treatment Complex -- Foundation for Success D. Internet Address			
E. Required Information				
1. Is document potentially Classified? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (MANDATORY) <div style="border-bottom: 1px solid black; width: 200px; margin-top: 10px;"></div> Manager's Signature Required If Yes _____ <input type="checkbox"/> No <input type="checkbox"/> Yes Classified ADC Signature Required 2. References in the Information are Applied Technology <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Export Controlled Information <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	3. Does Information Contain the Following: (MANDATORY) a. New or Novel (Patentable) Subject Matter? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If "Yes", Disclosure No.: _____ b. Information Received in Confidence, Such as Proprietary and/or Inventions? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If "Yes", Affix Appropriate Legends/Notices. c. Copyrights? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If "Yes", Attach Permission. d. Trademarks? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If "Yes", Identify in Document. 4. Is Information requiring submission to OSTI? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes 5. Release Level? <input checked="" type="checkbox"/> Public <input type="checkbox"/> Limited			
F. Complete for a Journal Article				
1. Title of Journal				
G. Complete for a Presentation				
1. Title for Conference or Meeting <u>Waste Management 2001</u> 2. Group Sponsoring <u>University of Arizona</u> 3. Date of Conference <u>Feb. 25, 2001</u> 4. City/State <u>Tucson, Arizona</u> 5. Will Information be Published in Proceedings? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes 6. Will Material be Handed Out? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes				
H. Author/Requestor <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <u>H.L. Boston</u> (Print and Sign) </div> <div style="width: 45%; text-align: right;"> <u>H.L. Boston</u> (Print and Sign) </div> </div>				
I. Reviewers				
General Counsel Office of External Affairs DOE-RL Other Other	Yes <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Print <u>Scott Stubblebine</u> <u>Eric Olds</u> <u>Steve Wiegman</u> _____ _____	Signature <div style="border-bottom: 1px solid black; width: 150px; margin-top: 10px;"></div> <div style="border-bottom: 1px solid black; width: 150px; margin-top: 10px;"></div> <div style="border-bottom: 1px solid black; width: 150px; margin-top: 10px;"></div> <div style="border-bottom: 1px solid black; width: 150px; margin-top: 10px;"></div> <div style="border-bottom: 1px solid black; width: 150px; margin-top: 10px;"></div>	Public Y/N (If N, complete J) <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; text-align: center; line-height: 30px;">Y</div> N <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; text-align: center; line-height: 30px;">Y</div> / N <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; text-align: center; line-height: 30px;">Y</div> / N <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; text-align: center; line-height: 30px;">Y</div> / N <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; text-align: center; line-height: 30px;">Y</div> / N
J. If Information Includes Sensitive Information and is not to be released to the Public indicate category below. <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> Applied Technology <input type="checkbox"/> Personal/Private <input type="checkbox"/> Proprietary <input type="checkbox"/> Business-Sensitive <input type="checkbox"/> Predecisional <input type="checkbox"/> UCNi </div> <div style="width: 45%;"> <input type="checkbox"/> Protected CRADA <input type="checkbox"/> Export Controlled <input type="checkbox"/> Procurement-Sensitive <input type="checkbox"/> Patentable <input type="checkbox"/> Other (Specify) _____ </div> </div>		Information Clearance Approval <div style="text-align: center;">  </div>		
K. If Additional Comments, Please Attach Separate Sheet				

Hanford Waste Treatment Complex -- Foundation for Success

H. L. Boston
Office of River Protection

R. Naventi
Bechtel National, Inc.

M. P. Delozier
CH2M HILL Hanford Group, Inc.

Date Published
February 2001

To Be Presented at
Waste Management 2001

University of Arizona
February 25, 2001

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management



P.O. Box 450
Richland, Washington 99352

Copyright License

By acceptance of this article, the publisher and/or recipient acknowledges the U.S. Government's right to retain a nonexclusive, royalty-free license in and to any copyright covering this paper.


Release Approval

2/22/01
Date

LEGAL DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report has been reproduced from the best available copy.

Printed in the United States of America

HANFORD'S WASTE TREATMENT COMPLEX -- FOUNDATION FOR SUCCESS

H. L. Boston, Office of River Protection, U.S. Department of Energy
M.P. Delozier, CH2M HILL Hanford Group, Inc.
R. Naventi, Bechtel National Inc.

ABSTRACT

The mission of the U.S. Department of Energy (DOE) Office of River Protection (ORP) River Protection Project (RPP) is to build and operate a Waste Treatment Complex to complete the cleanup of the Hanford Site's highly radioactive tank waste. As directed by Congress in Section 3139 of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, DOE established ORP at the Hanford Site in eastern Washington State to manage RPP (formerly the Tank Waste Remediation System). This is DOE's largest and most complex environmental cleanup project.

ORP is responsible for safe storage, retrieval, treatment, and disposal of 53 million gallons of highly toxic, high-level radioactive waste stored in 177 underground tanks located within seven miles of the Columbia River. One hundred forty-nine of these tanks have a single steel liner inside the concrete tanks and are decades beyond their design life. Sixty-seven have leaked an estimated one million gallons of waste into the soil. Some of this waste has reached the groundwater, threatening the Columbia River. It is urgent that this waste be vitrified (turned to glass) and stored or disposed of in a more secure location before more leaks occur and before tanks and infrastructure deteriorate to the point where the cost and schedule for cleanup becomes prohibitive.

This cleanup must occur in an environmentally sound, safe, and cost-efficient manner. The cleanup also must comply with the comprehensive cleanup and compliance agreement among DOE, the U.S. Environmental Protection Agency, and the Washington State Department of Ecology, signed on May 15, 1989. The *Hanford Federal Facility Agreement and Consent Order*, or Tri-Party Agreement, is an agreement for achieving compliance with the *Comprehensive Environmental Response Compensation and Liability Act of 1980* remedial action provisions and with the *Resource Conservation and Recover Act of 1976* treatment, storage, and disposal unit regulations and corrective action provisions.

The RPP is managed as a single, integrated Waste Treatment Complex. A RPP management team consisting of ORP, Tank Farm Contractor (CH2M HILL Hanford Group, Inc.), and the Waste Treatment and Immobilization Plant (WTP) Contractor (Bechtel Washington) execute the mission. The role each organization plays in laying out the foundations for success of the Waste Treatment Complex will be further identified in the paper.

HANFORD WASTE TREATMENT COMPLEX

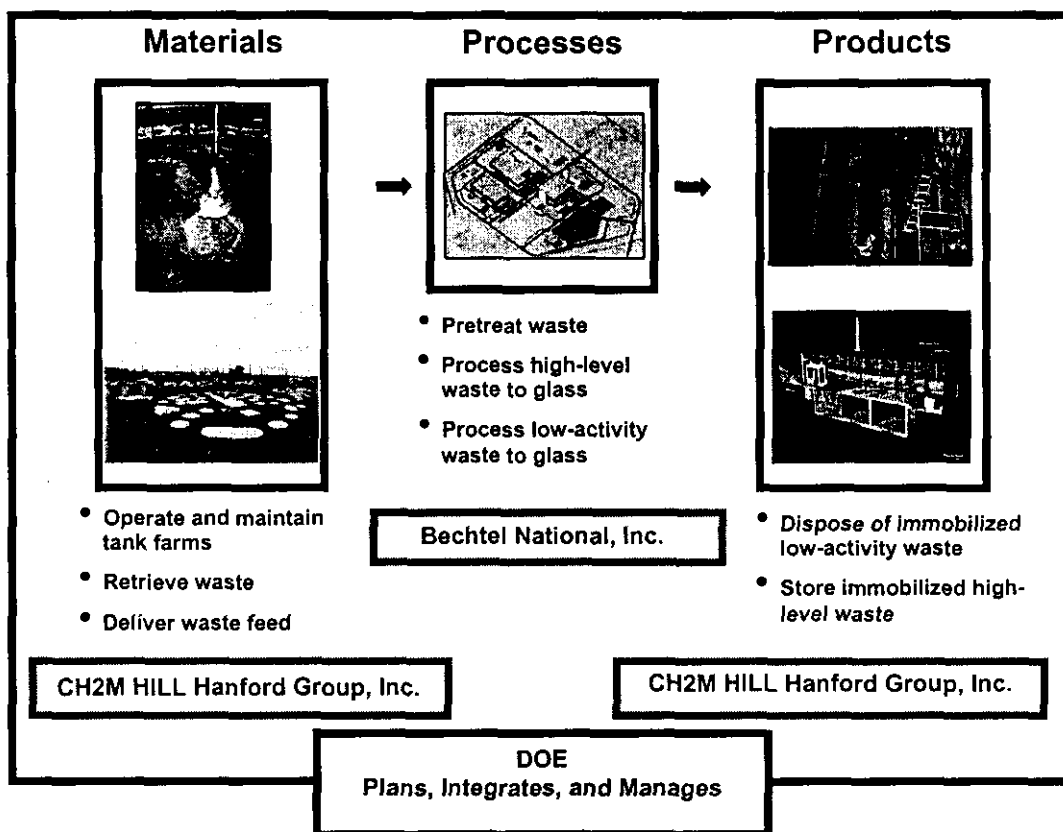
During the Hanford Site's plutonium production years, the tank farms accumulated and stored high-level radioactive waste with little attention given to its eventual treatment and disposal. By the end of the Cold War in 1991, the tank farms' physical condition and management had deteriorated. The results were in-tank waste safety issues, a weak safety culture, poor conduct of operations, and inadequate management. Since then most of these deficiencies have been corrected.

As the cleanup of Hanford Site tank waste begins, the tank farms must now function as part of a waste treatment complex. The tank farms must be (1) safely and efficiently operated and maintained to store the waste to be treated, and (2) upgraded and operated to retrieve the waste and deliver it to the treatment plant. The tank farms are an integral part of the waste storage, treatment, and disposal system. It is from this perspective that the U.S. Department of Energy (DOE) Office of River Protection (ORP) River Protection Project (RPP) is upgrading the tank farms and acquiring waste treatment and disposal capability.

ORP is moving forward with Phase I of the waste treatment and immobilization portion of the RPP life cycle. This phase entails retrieval, treatment, immobilization, and storage or disposal of at least 10 percent of the tank farms waste by mass and 25 percent of the tank waste by activity by 2018. Processing the Phase I waste will free up crucial tank space to transfer waste currently stored in the older single-shell tanks (SSTs) to newer, safer double-shell tanks (DSTs). After retrieval from the tanks, the waste will be separated into high-level waste (HLW) and low-activity waste (LAW) fractions so that most of the radionuclides and less than 10 percent of the other waste materials are in the HLW fraction with the remainder in the LAW fraction. Both wastes will be immobilized by vitrification and poured into steel containers. The LAW will be disposed of on the Hanford Site and the HLW will be stored on the Hanford Site until it can be shipped to a geologic repository for disposal.

To accomplish the ORP mission, DOE established RPP. RPP is managed as a single, integrated Waste Treatment Complex and consists of two main contractors responsible for performing work necessary to complete the mission. The first is the Tank Farm Contractor (CH2M HILL Hanford Group, Inc.), responsible for ensuring safe storage, retrieval, storage and disposal of the immobilized waste, decontamination and decommissioning, and initiation of post closure monitoring of the tank farms. The second includes a Contractor (Bechtel Washington) responsible for designing, constructing, commissioning, and supporting the transition of the Waste Treatment and Immobilization (WTP). Figure 1 depicts the approach.

Figure 1. Depiction of Waste Treatment Complex Contracting Approach



CH2M HILL HANFORD GROUP, INC. -- TANK FARM CONTRACTOR

CH2M HILL is responsible for safe storage and retrieval for treatment of the approximately 53 million gallons of highly radioactive and hazardous waste in 177 large underground tanks, located just seven miles from the American West's largest and most majestic river, the Columbia.

The older 149 SSTs pose a threat to public health, the environment and site workers because of the risk of future leaks. Approximately one million gallons of radioactive waste has leaked or is assumed to have leaked from 67 of the tanks in the past. Efforts are underway to reduce the risk of future leaks from the tanks.

While additional tank leakage is an immediate threat, the tank waste cleanup project at Hanford is even more daunting because of its sheer magnitude. The waste in all of the tanks must be characterized. Many of the tank and waste transfer systems needed to support future retrieval for treatment are well beyond their design life and are no longer compliant. This combination of challenges makes the tank waste cleanup project one of the most complex in the United States, if not the world.

CHG just signed a six-year \$2.2 billion contract extension with ORP to perform \$2.5 billion worth of work. The new arrangement significantly raises the bar for tank waste cleanup.

CHG must accomplish six to nine milestones per year on or ahead of schedule. A key feature of the contract is the inclusion of specific performance-based incentives that are tied to how much fee CHG can earn from the government. The contract also has provisions for so-called "superstretch" incentives, which are in the baseline of Hanford tank farm work but are currently unfunded.

CHG will need to achieve savings of approximately \$300 million dollars over six years while maintaining safe storage and reducing the risks associated with the older tanks, preparing all of the systems needed to deliver waste to a treatment facility by 2006, and meeting all DOE regulatory deadlines and milestones for cleanup.

The scope of work in the contract includes:

- Maintaining the thousands of systems needed to continue safe storage of the approximately 53 million gallons of radioactive and hazardous waste.
- Preparing the waste storage and transfer systems needed to deliver waste feed to a treatment facility by 2006.
- Pumping the retrievable liquid out of the remaining 23 SSTs by 2004 to reduce the possibility of future leaks from the aging tanks.
- Accelerating a program to remove solid waste from selected SSTs to meet regulatory requirements early.

The contract also continues and increases the strong emphasis on safety and protection of the environment, saying they will be integrated "into all activities, including those of subcontractors at all levels consistent with Integrated Safety Management principles." Other features of the contract include implementing a process to identify and manage technologies for Hanford-specific solutions.

To further appreciate the challenging nature of the contract, it is worth mentioning that CHG will perform work that previously had not been projected to be done until 2018. So how will the company achieve approximately \$300 million in savings over the next six years?

Work scope from previous base line plans that doesn't directly support the aforementioned scope was deleted. For example, completion dates of facilities and systems that will be used for transporting and storing waste treatment products have been pushed out to dates when they are needed. Expected efficiencies in operations will also contribute to avoiding costs. CHG will build on past accomplishments in this arena using the Safe Project Delivery approach.

Due to the dedicated efforts of company employees and innovations in transfer technology, work to remove liquid waste from Hanford's aging SSTs is being completed ahead of regulatory deadlines and annual milestones.

- 1.2 million of the estimated 3.6 million retrievable gallons have been moved to newer, safer DSTs;
- Pumping, or interim stabilization, is complete on 126 of the 149 SSTs; and
- Of the 24 left, 11 have been started.

The interim stabilization project is six months to a year ahead of its scheduled completion date of October, 2004, and cost savings are currently estimated at \$4 to \$5 million.

Another recent example of safe project delivery is the Tank SY-101 effort. The radioactive waste storage tank was once the top safety issue in the DOE complex because of its so-called "burps"—large releases of potentially flammable gases. The problem was solved over the last year by diluting and transferring waste from the tank. Eliminating the need for major maintenance operations on this tank will enable DOE to avoid an estimated \$80 million in life-of-the-tank maintenance costs. By putting SY-101 back into service, DOE is more likely to avoid building new tanks to stage waste as it is retrieved from Hanford's 149 older SSTs.

CHG will build on these past successes as it moves forward toward accomplishing its new scope of work. The company will be ready to safely deliver waste feed to a treatment facility by 2006 within DOE funding constraints. A concerted and systematic effort to characterize the hodgepodge of waste in tanks expected to provide feed waste will be completed. Thousands of feet of transfer piping and the systems needed to mix, pump and transfer tank waste will be installed.

These efforts will make it possible for the DOE to meet a 2007 startup date for waste treatment plant operations. CHG will also be ready to provide contingency waste feed if needed for an increased treatment processing rate.

CHG will complete interim stabilization of all 149 older SSTs. Moving retrievable liquid waste from the last of the aging tanks into newer, safer DSTs will:

- Reduce the risk to public health, the environment and the Hanford work force;
- Eliminate future migration of contaminants to the soil between the tanks and the groundwater;
- Reduce SST waste by approximately four million gallons, or 12 percent; and
- Enable DOE to meet regulatory requirements early

CHG will demonstrate technologies needed to remove solid waste from the aging tanks, helping DOE to meet its regulatory milestones early. Most importantly, waste retrieval will reduce the risk to public health, the environment and the Hanford work force by:

- Reducing mobile radionuclides in the SST system by 10 percent (2130 curies);
- Reducing total radionuclides in the SST system by 2,700,000 curies; and
- Reducing total dangerous waste by 2,600,000 kilogram (kg).

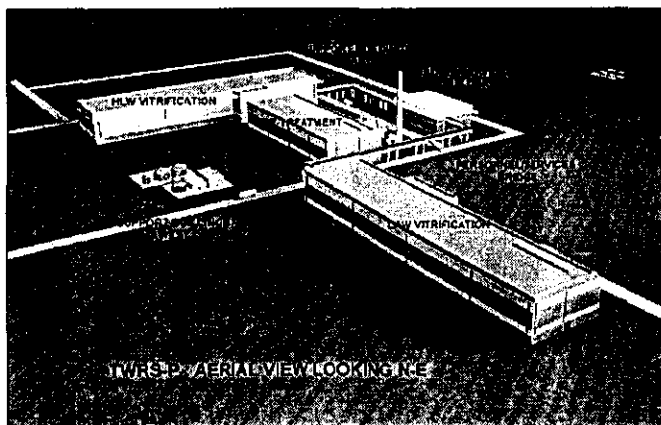
The recently extended contract with the DOE provides a framework for continuity on the tank waste project, a clear six-year vision for project execution, and a clear motivation for CHG to reduce costs and deliver projects. The new contract provides value to the government through completing more hard deliverables for reduced cost.

BECHTEL NATIONAL, INC. -- WTP CONTRACTOR

The RPP technical progress has been sufficient to give ORP confidence in proceeding with construction and operation of the Phase I WTP. Despite the decision to terminate privatization of waste treatment services, the privatization contractor's technical design was sound and the interim successor contractor, the RPP TFC, advanced this work. Prominent technical progress during the past two years includes: process tests with simulated and actual waste have demonstrated that the separations processes will meet or exceed contract requirements, and a one-third-scale melter has exceeded design capacity by 50 percent during pilot plant demonstration runs. These successes generate a high level of confidence that the plant will meet processing requirements.

Bechtel National, Inc. with the teaming subcontractor, Washington Group International, Inc. bring all of DOE's high-level waste vitrification experience from their highly successful West Valley and Dangerous Waste Processing Facility (DWPF) operations. They bring invaluable expertise in research and testing, commissioning, and operability considerations from their unique operating experience to minimize the WTP learning curve and accelerate progress. Together, Bechtel and Washington Group have the right approach, knowledge, and experience to help DOE achieve "glass by '07."

Waste Treatment Plant Design



Artist's concept of waste treatment plant.

The WTP will be comprised of three major facilities: pretreatment, HLW vitrification, and LAW vitrification. Additional supporting facilities will include an administration building and an analytical laboratory. The WTP design was approximately 15 percent complete at termination of the privatization contract. This level of design was sufficient to fix the process flowsheet, process equipment components, civil structural and architectural layout of the facilities, and overall site layout. Initial seismic evaluations of the pretreatment and HLW vitrification facilities were completed and information was developed to support an initial construction authorization request.

Using information developed from the process and facility design, the privatization contractor prepared a cost estimate and a detailed schedule of activities for project completion. DOE used this cost and schedule information to prepare the Government Fair Cost Estimate that was used in the WTP procurement under a cost-plus-incentive fee contract approach.

Bechtel carefully planned restart of the WTP project, taking full advantage of program knowledge, incumbent resources, and existing plans, procedures, systems, and processes. By leveraging the extensive base of existing resources, the Bechtel-Washington Group team can resume the design faster, resulting in assumption of the Design Authority at the end of the twelfth week after contract award. However, the Bechtel approach is not to merely pick up where things were left. The approach includes specific new initiatives to optimize all project phases. Bechtel will start by setting up independent Challenge Teams to revisit design assumptions and bases. Specifically, the Challenge Teams will bring a fresh perspective and lessons learned to all elements of the program in the R&T and optimization arena and where we can apply West Valley, DWPF, and other lessons learned. Through initiatives such as this, a realistic—yet aggressive—baseline can be set for the duration of the project.

Waste Retrieval and Delivery

The WTP is only part of the overall process of tank waste storage, retrieval, treatment, and disposal. Excellent progress has been made in the tank farms in preparing to retrieve and provide waste feed to the WTP. The SST waste retrieval sluicing system performed beyond expectations in removing approximately 190,000 gallons of mostly sludge from tank C-106 while resolving the high-heat safety issue associated with that tank. The full-scale DST mixer pump test conducted in tank AZ-101 demonstrated the capability to mix the sludge and liquid in these tanks so it can be transferred to the WTP. Additional waste tanks have been sampled and the waste characterized to ensure waste feed will be available if the WTP is operated at a higher capacity. Waste transfer lines, valve assemblies, and tank ventilation upgrades have also been completed.

Waste Treatment Plant Infrastructure

Infrastructure must be provided for the new WTP. ORP and its Tank Farm Contractor have made excellent progress in the past two years in this area. A 65-acre site has been cleared and prepared for construction of the WTP and the required infrastructure is being installed. Work completed to date includes access roads, raw water lines, and potable water lines. Construction work in progress includes running electrical power lines to the WTP site, building an electrical substation, and installing liquid effluent transfer systems. This work will be completed in 2001, ahead of schedule and 10 to 15 percent under budget.

Integration

The Bechtel-Washington Group team will ensure that WTP is integrated at multiple levels: with DOE as customer; with the Tank Farm Contractor, the future WTP operator, and the other stakeholders; vertically through our project managers for cost, schedule, and scope; and horizontally through our discipline managers for consistency, accuracy, and efficiencies. This approach ensures proper focus on getting the job done right the first time, on cost, and within budget.

The life-cycle baseline is a major tool for integrating the project. It integrates cost, schedule, and resources; all the WTP project participants; our subcontractors and our craft labor; annual funding profiles with long-term funding needs; and research and technology efforts into critical path design tasks.

OFFICE OF RIVER PROTECTION

To ensure successful completion of the RPP mission, ORP is laying the following foundation:

- Established credible and affordable plans for tank waste treatment;
- Two top-ranked contractors:
 - Contracts aligned with project commitments to provide facilities on time that operate safely and reliably; and
 - Contractor earnings are based on improving quality and driving down cost.
- Competent Federal organization that is accountable for driving project performance;

- Relationship with regulators based on open communication and working together to drive cleanup and protect the Columbia River; and
- Building a strong advocacy by:
 - Sharing information;
 - Establishing common expectations; and
 - Working together for project success.

Unified Contracting Strategy

ORP adopted a contracting strategy that makes its contractors accountable for their work on the RPP by providing both positive and negative performance based incentives. Both major contracts for RPP work are now assigned to ORP as prime contracts. The first contract is the tank farms contract with is responsible for ensuring safe storage and retrieval of the tank waste; storage and disposal of immobilized waste products; and decontamination, decommissioning, and initiation of post-closure monitoring of the tank farms. The second major contract is for designing, constructing, and commissioning the new WTP. After the WTP is commissioned, a WTP operations contractor will replace the WTP construction contractor.

Both the tank farms contract and the WTP contract are cost-plus contracts with incentive features. The tank farms contract has annual performance incentives for project accomplishments and for implementing technologies or processes that achieve better, faster, and cheaper results.

Managing Work as One Integrated Project

Improvements were made in ORP project management systems. ORP manages the RPP as a single project. This management approach is designed to handle a large and complex project, such as the RPP, ensuring integration among RPP prime contractors, ORP and the Richland Operations Office. Key features include assembling an experienced and dedicated management team, clarifying roles and responsibilities, and implementing disciplined and proven project management systems. While project management systems have been in use for some time, these systems are being upgraded to focus on the key mission objective of building and operating a waste treatment complex.

- Baseline Management Tools -- Project scope, schedule, and cost are merged into a single RPP baseline, maintained under configuration control, and managed through the change control process. A master integrated, logic-networked life cycle schedule was completed in April 2000 in accordance with a common specification mutually agreed to by ORP and its prime contractors. The schedule provides a time-phased plan with a logical sequence of interdependent activities, milestones, and events necessary to carry out the project mission. This schedule illustrates and integrates all Tank Farm Contractor and WTP Contractor schedule data in a single master schedule, which is the fundamental tool for managing and controlling the baseline. The scheduling system also provides a basis for measuring progress and assessing project opportunities and risks, and identifies and depicts conflicting schedule dates and critical path concerns so corrective action measures can be taken. The integrated mission schedule was completed in August 2000. Other baseline schedules and documents are being prepared and will be regularly updated.

- Baseline Change Control Process Being Upgraded -- The RPP baseline has been under configuration control since April 2000. ORP is developing a single, integrated change management process for managing and controlling both technical and programmatic changes. An ORP change management directive for the RPP will be implemented by December 2000, including training. Proposed changes are subjected to a detailed evaluation for life cycle schedule and cost impacts to the RPP baseline, as well as interfaces between RPP functions and organizations. The process ensures that all work being performed meets baseline requirements and that the impacts of changes to the baseline are adequately considered before any actions are taken. Baseline changes are reviewed based on the need to meet or change technical requirements, mitigation of risk to the RPP, and overall life cycle schedule and cost efficiency.
- Interfaces Established and Controlled -- The RPP is an unusually complex project. For the entire project to be successful, all organizations must do their jobs well and on time. It is crucial that all project interfaces are well understood and that the responsibilities and processes for making these interfaces function are clearly laid out. The key ORP interfaces are designed to ensure those needs are met. Items flowing across the interfaces can be categorized as follows:
 - Physical quantities (e.g., waste feed, immobilized products, water, electricity)
 - Information (e.g., requirements, performance documents, reports, planning documents)
 - Funds (e.g., payments).

An interface management process has been established for the RPP to control technical, administrative, and regulatory interfaces. An Interface Working Group composed of technical and management staff from ORP and contractor organizations defines, documents, controls, and manages each RPP interface. Interface documentation is baselined and placed under change control. The Interface Management Team is a joint ORP contractor, senior-level team tasked with responsibility to ensure successful exchange of materials and services through issue-tracking and to arbitrate issues that are not resolved by the Interface Working Group.

Interface management ensures that management control exists for the interfaces and that the controls are appropriate. ORP uses several types of vehicles to ensure that interfaces are managed, including memoranda of agreement, memoranda of understanding, interface control documents, and letters. Interface control documents define the technical details of the interfaces between ORP and its contractors, and between contractors.

- Performance Measurement System Being Formalized -- A formal performance measurement system is being established to assess RPP progress and to provide visibility to problems that need management attention. The system will measure progress by evaluating actual performance against the project baseline schedules and cost estimates. Particular attention will be given to activities on the critical path. Both contractors and ORP will report on project performance in regularly scheduled review meetings. Performance against other key indicators important to project success will also be measured.

- **Risk Management Process Being Standardized** -- Risk management is an integral part of project management. ORP is establishing a standardized, structured process for identifying, analyzing, and controlling risks. The process manages risk proactively from project initiation to completion. This results in a decreased likelihood of potential cost overruns, schedule delays, and compromises in system quality.

Two principal types of risks have been identified. Baseline risks are the set of specific uncertainties in the cost, ability to perform scope, and schedule of specific activities in the integrated project baseline. These risks are analyzed quantitatively (particularly for potential cost and schedule impacts), and managed by project managers responsible for that part of the work. Organizational risks are typically qualitative in nature and are not directly tied to specific project baseline activities. Organizational risks may include stakeholder, funding, workforce, regulatory, or contractual issues and concerns. By employing prioritized project risk information (both qualitative and quantitative), the project managers and ORP management team can jointly focus attention on gaining early management control of the highest-risk activities.

Relationships with Stakeholders and Regulators

The Pacific Northwest's interests in Hanford Site cleanup are represented by a diverse collection of states (Washington and Oregon), tribes, and environmental and other stakeholder groups. These organizations have identified the Hanford Site tanks as one of the most urgent environmental threats to the Northwest and strongly support moving ahead with the RPP.

ORP is working to reach agreement on milestones that are consistent with the schedule required to build and start up the very large, complex WTP. The recent agreement reached to modify the Consent Decree (i.e., to include a milestone for awarding the WTP contract by January 15, 2001) supplants the Tri-Party Agreement requirements for DOE to have authorized the WTP contractor by August 2000 to proceed with design and construction as required by the terminated privatization contractor.

Progress was also made on another contentious issue concerning the schedule for retrieving SST waste. Agreement was reached on a Tri-Party Agreement revision that would focus on SST retrieval demonstrations and retrieval of high-risk waste first rather than requiring early retrieval of lower-risk waste from a large number of nearly empty tanks.

The Deputy Secretary and the ORP Manager recently met with senior Washington State officials to find ways to work together in a more cooperative manner. Both parties have the same goal, cleaning up the Hanford Site tank waste.

Abs. # 534

WM'01 CONFERENCE
Paper Submission Form

INCLUDE WITH YOUR PAPER SUBMISSION

(You may copy this sheet)

Contact name: Harry L. Boston

Phone: (509) 376-6677 Fax: (509) 376-8142

E-mail: Harry - Lm Boston @ RL.604

City: Richland State/Country: WASHINGTON/USA Zip: 99352

Type of Software used: IBM ☒ Mac ☐ Software Program and Version: MSWORD 2000

I have included the following: (Please Check)

List the following quantities:

- ☒ Signed copyright form
- ☒ Abstract at the beginning of paper
- ☒ 1 original and 3 copies of paper
- ☐ Original figures and equations
- ☐ Tables
- ☒ Paper Submission Form (this form)
- ☒ Biography

- ☐ # of Pages (Max. 15 pages)
- ☐ # of Figures (Max. 4)
- ☐ # of Tables
- ☐ # of Equations

PLEASE E-MAIL AND YOUR PAPERS TO:

LOI, Inc.
1870 W. Prince, Suite 11
Tucson, AZ 85705
V-(520)292-5652
E-mail-papers@wmsym.org

What Audio Visual Aids will you use? ☐ Slides ☒ Viewgraphs

LCD Projectors (computer aided)

☒

Computer Projectors are limited. Please call 3 weeks in advance to reserve.

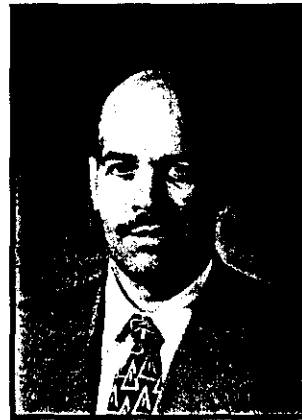
Office of River Protection – Biography

Dr. Harry Boston, Manager

Dr. Harry Boston was named Manager of the Department of Energy's Office of River Protection on January 3, 2001, a role he had been acting in since August 2, 2000. As Manager of the Office of River Protection, he is responsible for the safe storage, retrieval, treatment, and disposal of 54 million gallons of high-level radioactive waste at the 560 square mile Hanford Site in southeastern Washington State. The Office of River Protection will build and operate the world's largest radioactive waste treatment facilities to complete the cleanup of Hanford's tank waste and protect the Columbia River. The Hanford tank waste cleanup effort is the largest, most important environmental cleanup project in the country.

Prior to his appointment as Manager, Dr. Boston served as the Deputy Manager for Site Transition with the Department of Energy's Richland Operations Office. In that role, he was responsible for the safety, planning, and cleanup of aging reactors, contaminated facilities, buried waste, spent nuclear fuel, plutonium materials, and groundwater at Hanford.

From 1996 to 1999, Dr. Boston served as Vice President of Lockheed Martin Hanford Corporation. Prior to that, he spent 11 years with Lockheed Martin in Oak Ridge, Tennessee where he was the manager of the Oak Ridge National Laboratory Environmental Restoration Program, a project manager, and early on a research scientist. Dr. Boston has earned degrees in biological and engineering sciences, including a B.S. in Natural Resources from Cornell University, an M.S. in Civil Engineering from the University of Washington, and a Ph.D. from the University of Wisconsin.



Office of River Protection

The Office of River Protection manages the day-to-day operation of the nation's largest and most complex environmental cleanup project--retrieval and treatment of tank waste at the Hanford Site. More background information on the Office of River Protection can be found on the office's web site at: <http://www.hanford.gov/orp>

RONALD F. NAVENTI

Ron Naventi is Project Manager of Hanford's Waste Treatment and Immobilization Plant Project. He is also a Senior Vice President of Bechtel National, Inc. (BNI). BNI and its preselected subcontractor, Washington Group International, Inc., will design, construct and start up the waste treatment and immobilization plant for the U.S. Department of Energy's Office of River Protection under a \$4 billion, 10-year contract awarded December 2000.

Naventi has 34 years of experience on large, complex projects. His experience includes project and general management, engineering, construction, startup, commissioning and licensing. He also brings a combination of hands-on project management expertise and insight gained by working with stakeholders, regulators and customers.

Naventi joined Bechtel in 1979 as an engineering supervisor. Since then, he has undertaken a series of increasingly important assignments. Under his leadership, BNI's defense work in the former Soviet Union has grown from an initial \$40 million to a workload now valued at \$250 million. His abilities were recognized by Bechtel when he was named Senior Vice President and Partner – 1 of only 40 in the 40,000-person company.

During his career at Bechtel, Naventi managed several Department of Energy, Department of Defense, and NASA projects, including the \$2.3 billion National Wind Tunnel Complex, the planned \$600 million Superconducting Super Collider Installation, the \$200 million Weapons Storage and Security Systems, and the \$60 million Strategic Defense Facility at Sandia National Laboratory. Earlier, he directed project engineering teams for nuclear fuel operations and advanced technology projects such as the Waste Isolation Pilot Project, Defense Waste Processing Facility, and Portsmouth Centrifuge Enrichment Plant Recycle/Assembly Facility.

Because of his commitment to customer satisfaction and safety, Naventi's projects have consistently delivered some of the highest performance awards in the industry—including several 100 percent ratings. He has achieved exemplary safety records, leading multiple projects to work more than one million hours worked without a lost-time accident.

Before joining Bechtel, Naventi served in various capacities for the U.S. Nuclear Regulatory Commission, Stone & Webster, and The Foxboro Company.

An electrical engineering graduate of Worcester Polytechnic Institute in Massachusetts, Naventi also holds a master's degree in mechanical engineering from George Washington University.

Fran DeLozier – Bio

Fran DeLozier is the CH2M HILL Hanford Group President and General Manager. CH2M HILL Hanford Group (CHG) is the operating contractor for DOE's Office of River Protection. CHG is responsible for the safe operation of the 177 underground high-level nuclear waste tanks at Hanford, which contain 54 million gallons of waste, 60% of DOE's high-level waste nationwide. The company has earned a reputation for progress in stabilizing long-term safety issues that concerned the community and the region. DOE's tank waste clean up is the largest and one of the most complex environmental projects in the US.

Originally from Pittsburgh, Fran worked at DOE's site in Oak Ridge Tennessee after receiving her bachelor's degree in chemical engineering from Carnegie-Mellon University. She also obtained a master's degree in engineering management from the University of Tennessee. While in Tennessee she was worked in many aspects of DOE's nuclear programs, including operations, safety, engineering and project management. Of particular interest to TRIDEC, Fran has had specific educational courses in city planning, marketing, plant management, transportation and logistics, budgeting and finance, and business law. In her spare time, she and her husband owned a small farm and raised cattle. She was president of the Parent/Teacher Organization in her community and was both a Girl Scout leader and Cub Scout Den mother.

Since moving to Richland four years ago, Fran has been a very active community citizen. In addition to serving on the TRIDEC Board of Directors for the past 2 years, she is also on the Boards for United Way and Goodwill Industries. She is a member of the Richland Chapter of Rotary International. Last year, the Tri-Cities Corporate Council of the Arts honored her with its Heart of the Arts award for corporate leadership and individual contributions. She has chaired the local U. S. Savings Bond drive and has played key fund-raising roles for the march of Dimes WalkAmerica and the American Cancer Society Relay for Life. The National Management Association honored Fran in April 2000 with the Silver Knight of Management award, the highest level of individual recognition for the organization. She is also on the Steering Committee for Junior Achievement. In September, Washington State University will recognize her as a Benefactor.

Fran and her husband, a retired nuclear engineer, have two teenagers, a daughter attending Washington State University and a son who is a senior at Hanford High School.

Session: 3 Abs#: 534

WM'01 Copyright Waiver For Proceedings

- I. TITLE: *Hanford Waste Treatment Complex - Foundation for Success*
- II. NAME and COMPANY: *Harvey L. Boston
U.S. Department of Energy
Office of River Protection
Richland, WA*
- III. Copyright wavier (to be sent to contacting authors for signature to guarantee legal transfer of rights).

Submission of this manuscript for publication is representation by the author that this material has not been published, copyrighted or submitted for publication elsewhere, except for such parts as are clearly identified as to original source and accompanied by copy of permission to reproduce from the original copyright owner; and that the author conveys to WM Symposia all copyright to the final publication.

Signed: _____



Date: _____

2/20/01

(You may Xerox for other authors' signatures)

Session: 3 Abs#: 534

WM'01 Copyright Waiver For Proceedings

- I. TITLE: *Hanford Waste Treatment Complex -- Foundation for Success*
- II. NAME and COMPANY: *M. P. Delozier*
CH2M Hill Hanford Group, Inc.
- III. Copyright wavier (to be sent to contacting authors for signature to guarantee legal transfer of rights).

Submission of this manuscript for publication is representation by the author that this material has not been published, copyrighted or submitted for publication elsewhere, except for such parts as are clearly identified as to original source and accompanied by copy of permission to reproduce from the original copyright owner; and that the author conveys to WM Symposia all copyright to the final publication.

Signed: _____

MP Delozier

Date: _____

2-21-01

(You may Xerox for other authors' signatures)

Session: 3 Abs#: 534

WM'01 Copyright Waiver For Proceedings

- I. TITLE: *Hanford Waste Treatment Complex - Foundation for Success*
- II. NAME and COMPANY: *Ron Naventi*
Bechtel National, Inc.
- III. Copyright wavier (to be sent to contacting authors for signature to guarantee legal transfer of rights).

Submission of this manuscript for publication is representation by the author that this material has not been published, copyrighted or submitted for publication elsewhere, except for such parts as are clearly identified as to original source and accompanied by copy of permission to reproduce from the original copyright owner; and that the author conveys to WM Symposia all copyright to the final publication.

Signed: _____

R Naventi

Date: _____

2/21/01

(You may Xerox for other authors' signatures)